

FIG. 1

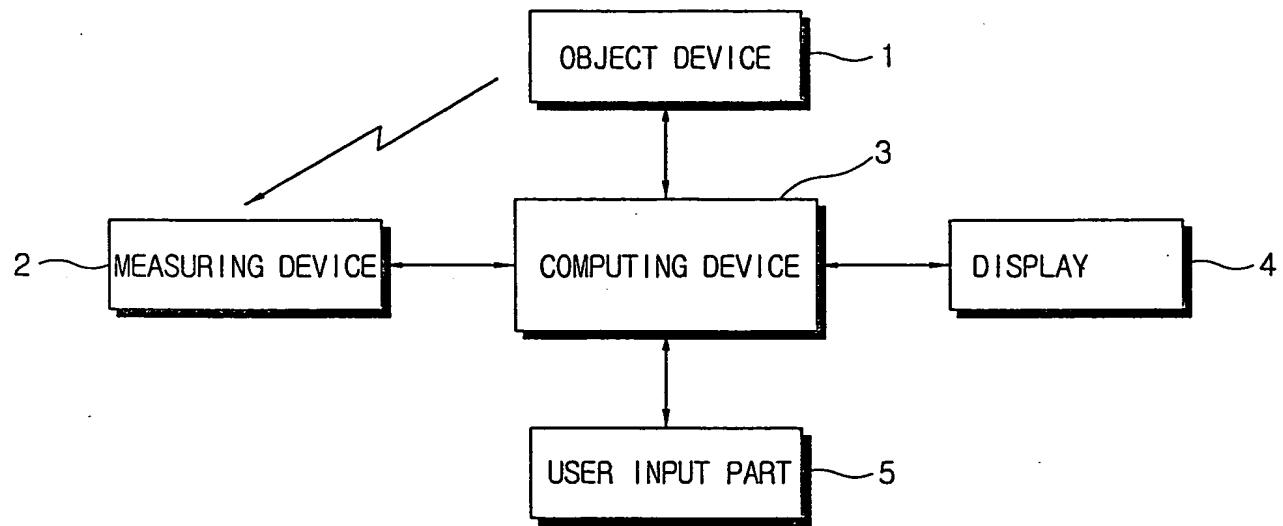
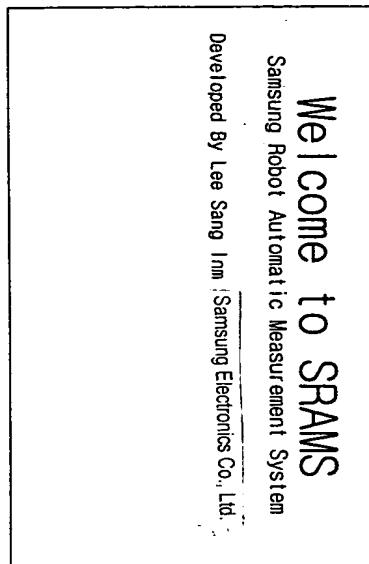
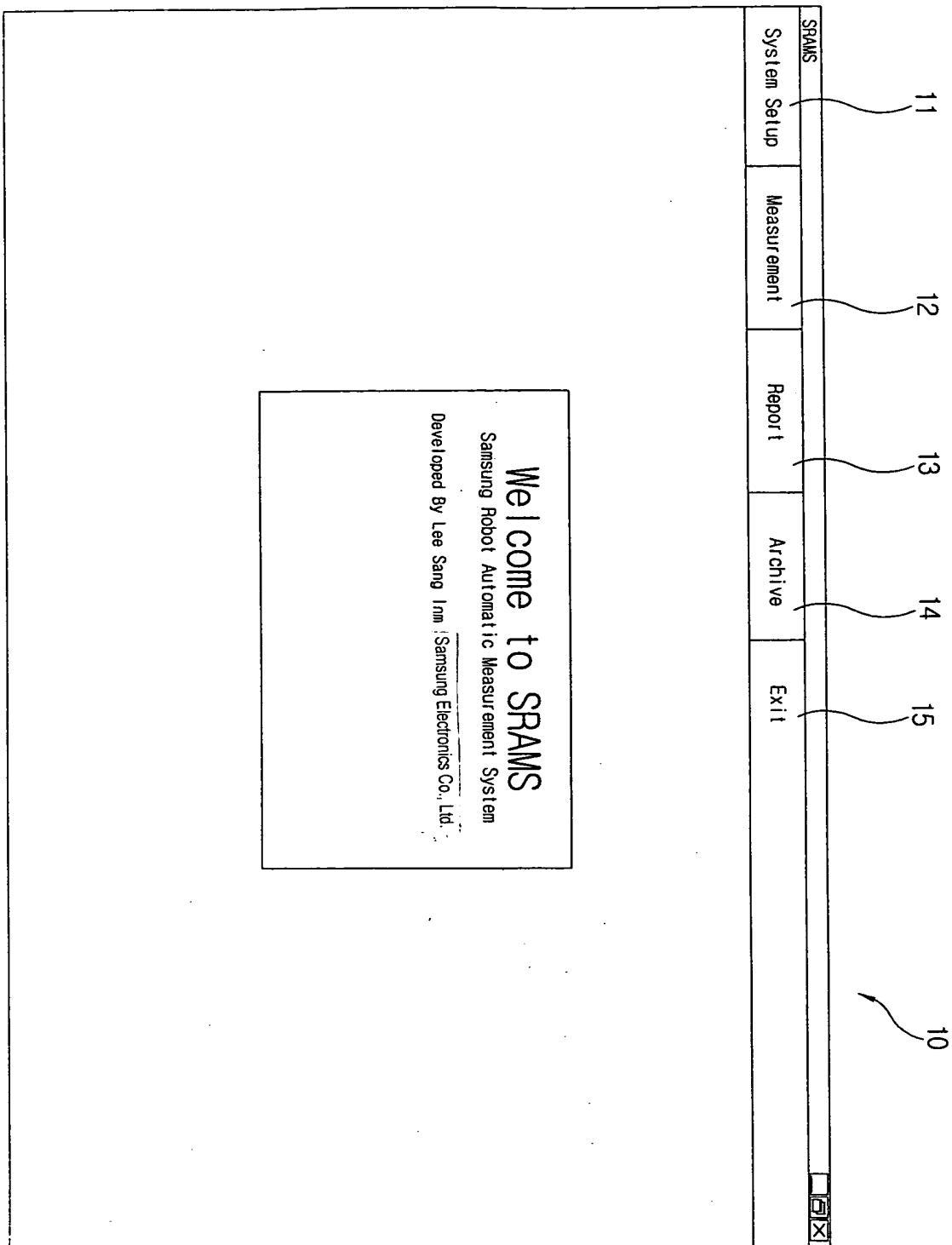
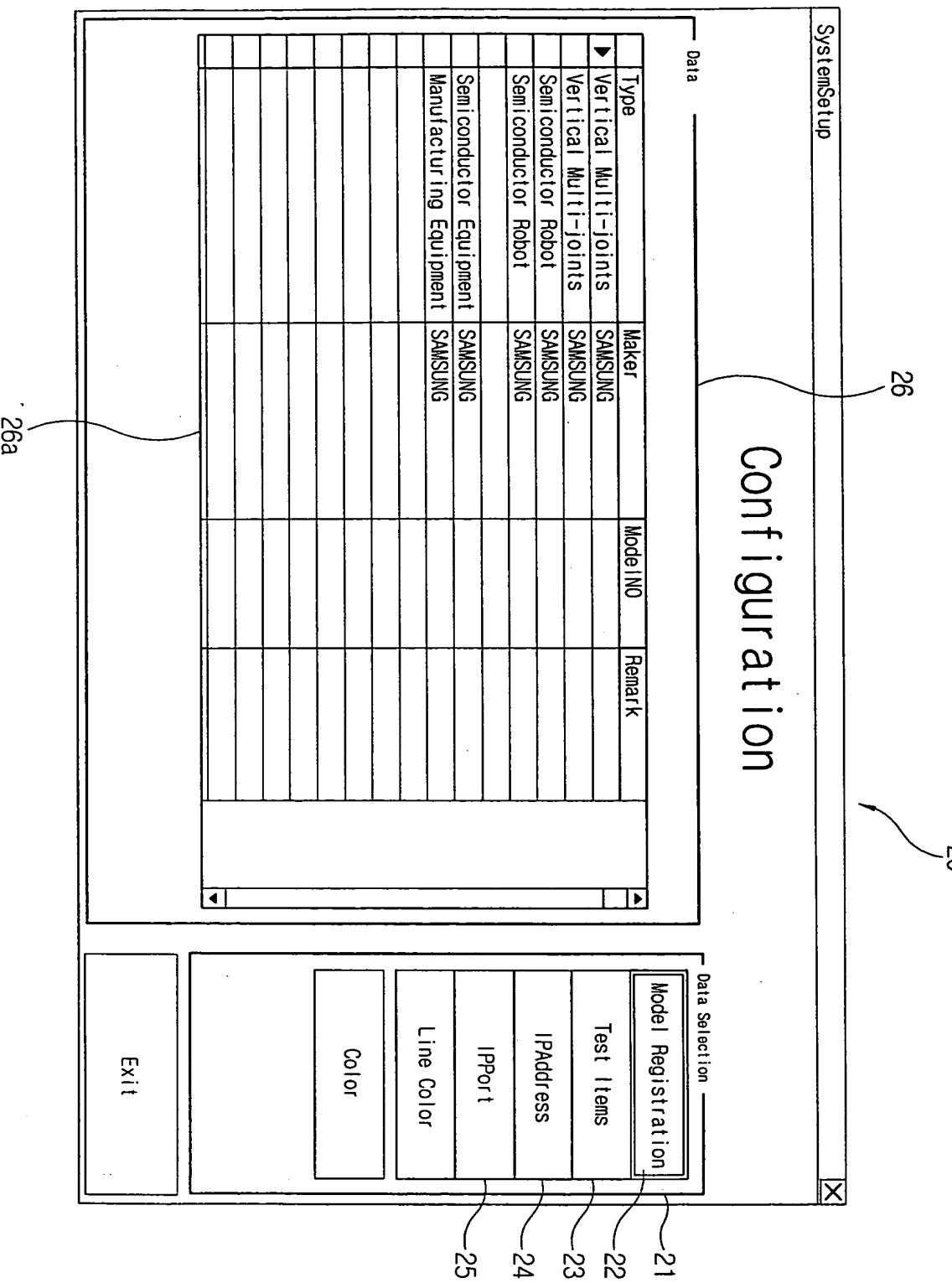


FIG. 2



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FIG. 4

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SystemSetup

Configuration

Data

| TestName | ProName | Count | ReferName |
|-------------------------------------|---------|-------|-----------|
| Point | | | |
| Reference | | | |
| Pose Accuracy and Repeatability | | | |
| Multi-directional pose accuracy | | | |
| Distance acc. and repeatability | | | |
| Pose stabilization and overshoot | | | |
| path acc. repeat. velo. fluctuation | | | |
| Circular acc. & repeat. (Big) | | | |
| Circular acc. & repeat. (Small) | | | |
| Path accuracy on reorientation | | | |
| cornering deviation(Rectangular) | | | |
| Minimum posing time | | | |
| Drift of pose | | | |
| Exchangeability | | | |
| Static compliance | | | |
| Weaving deviations | | | |

Data Selection

Model Registration

Test Items

22

IPAddress

23

Import

24

Line Color

25

Color

Exit

26b

Fig. 5

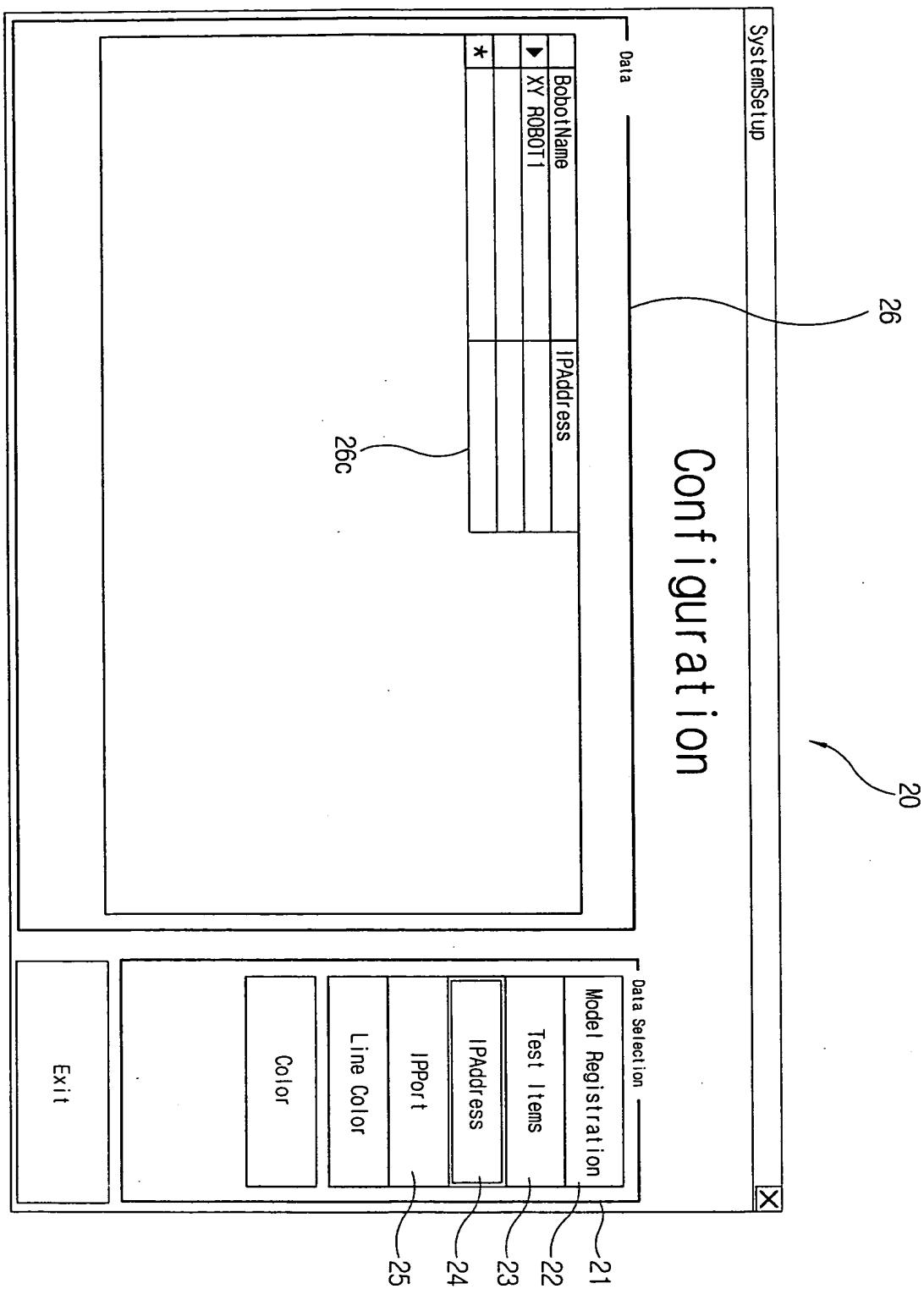


FIG. 6

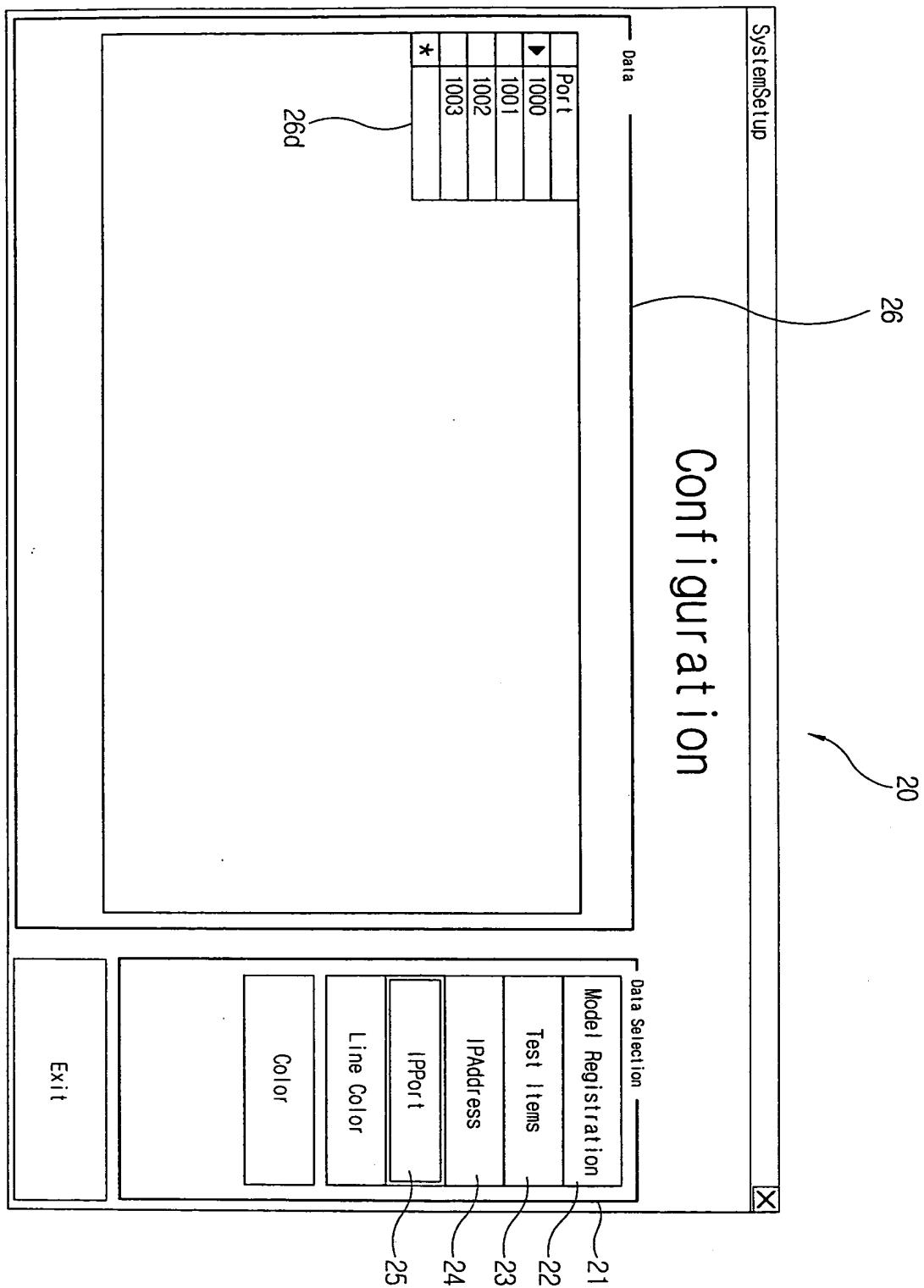


FIG. 7

31a 31b 31

33b

30

35

Robot & Eqip. Test Specification

| Robot Selection | | Limit Setup 1/6 | | | |
|---------------------|---------------|-----------------|------------|--------|--------|
| Semiconductor Robot | ▼ | Robot Model | WTR | APHigh | APLow |
| RML in KLT | ▼ | 2 | SS2 | 0.05 | -0.05 |
| Model Register | | 3 | RML in KLT | 0.1 | -0.1 |
| Test Selection | | 4 | AM1 | 0.1 | -0.1 |
| Pos Acc | Path Circle | 5 | AM2 | 0.1 | -0.1 |
| Multi-direction | Path Reorient | 6 | AM2 | 0.1 | -0.1 |
| Post Acc | Cornering | Robot Model | APHigh | APLow | APHigh |
| OverShoot | Path Velocity | 1 | WTR | 0.1 | -0.1 |
| Drift | Minimum | 2 | SS2 | 0.05 | -0.05 |
| Pathline | Weaving | 3 | RML in KLT | 0.1 | -0.1 |
| Exchange | Static | 4 | AM1 | 0.1 | -0.1 |
| Pathline | W | 5 | AM2 | 0.1 | -0.1 |
| Drift | Min | 6 | AM2 | 0.1 | -0.1 |

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Default Value

0.1

Add New

Update

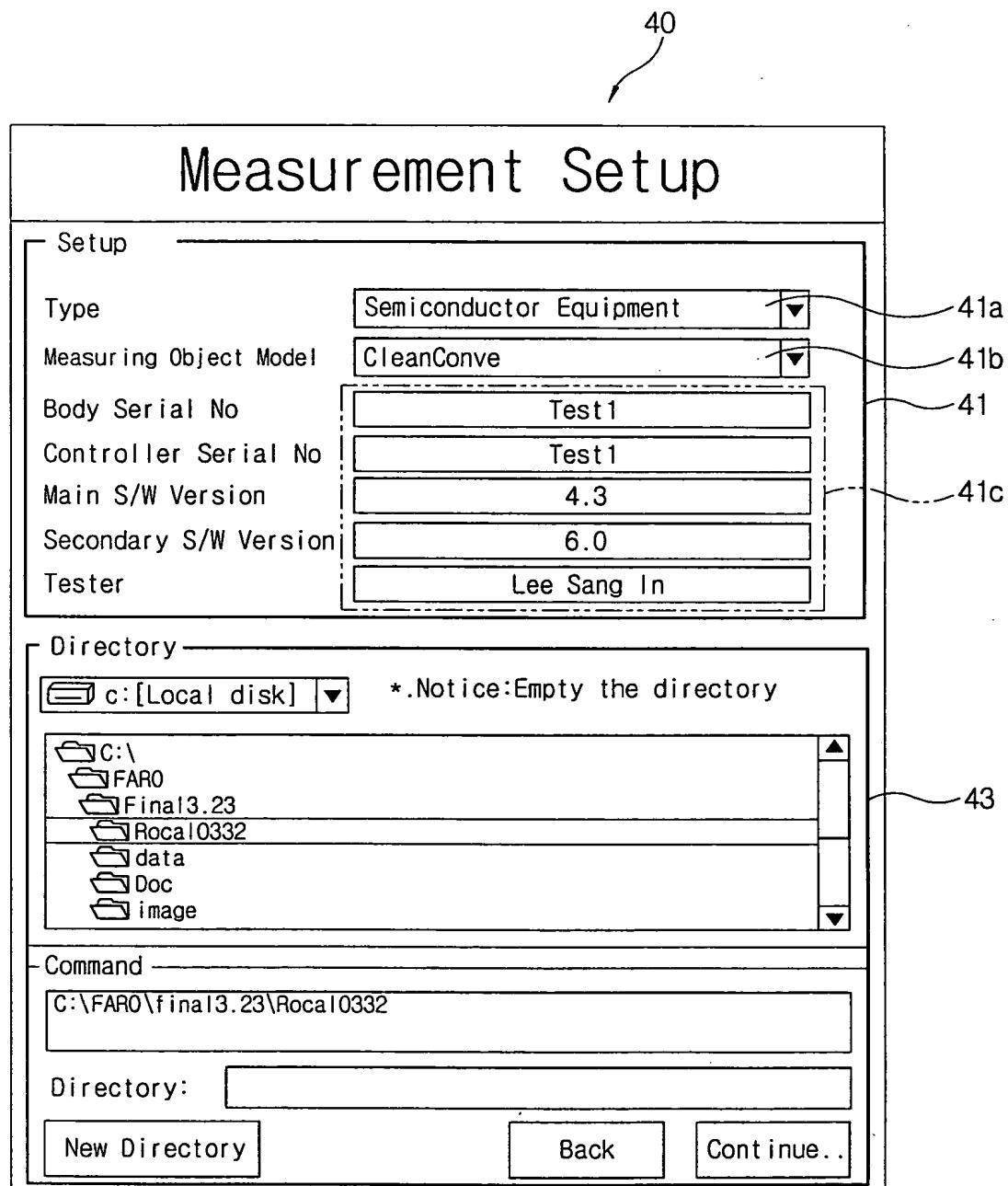
Delete

Exit

33a

33

FIG. 8



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一
九

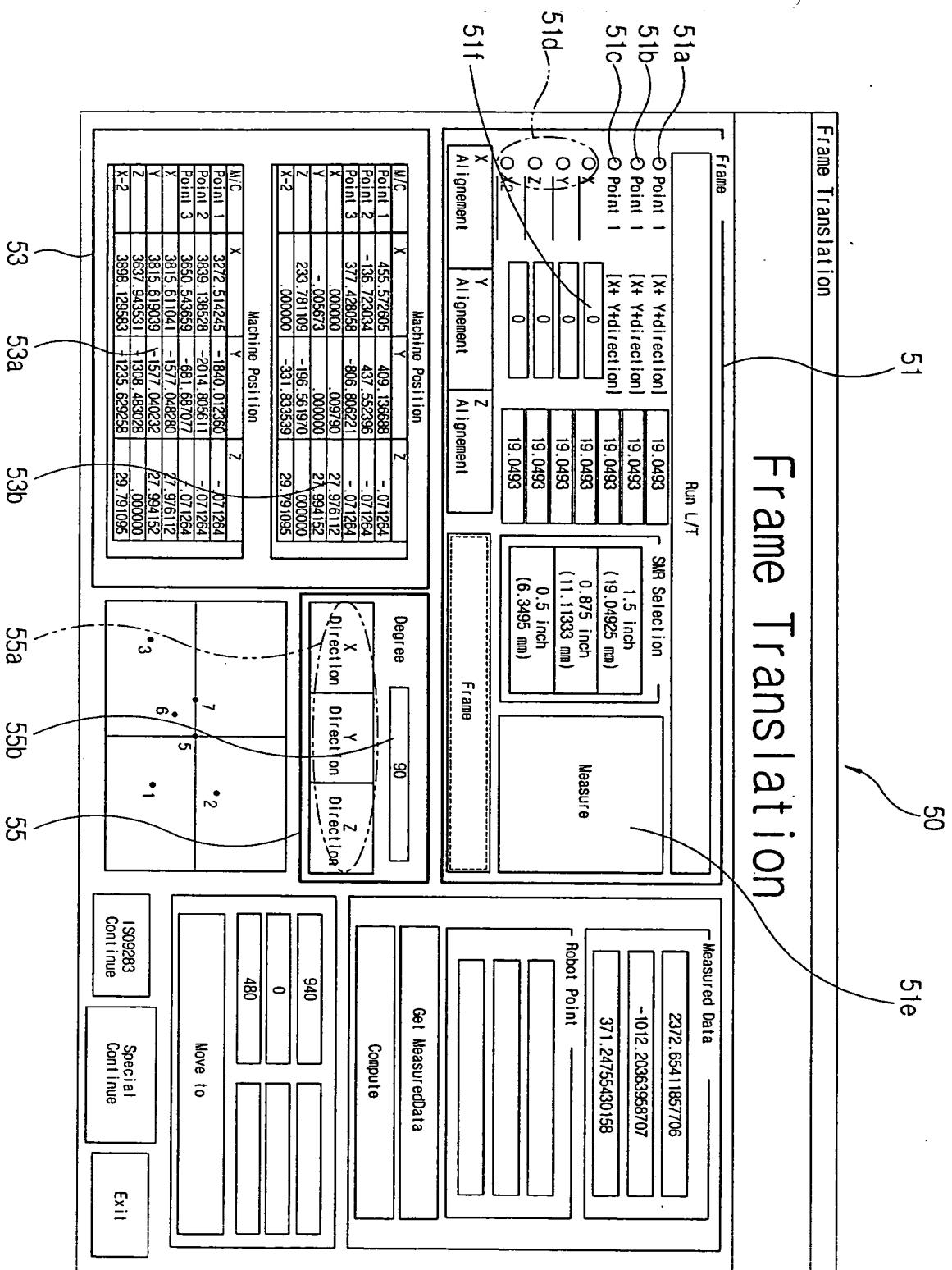


FIG. 10

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SRAMS - Robot Control

Special Measurement

RS232C LAN NoComm

Port COM 1 Band Rate 19200

Connect Disconnect

Configuration

Robot Speed 50%

CP Speed

Load 100%

Commands

Send Insert Delete

Clear

Measurement

Test Selection

No Ref Cycle

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Point Reference Pose Accuracy and Repeatability Multi-directional pose accuracy Distance acc. and repeatability Pose stabilization and overshoot Path acc. repeat. velo. fluctuation Circular acc. repeat (Big) Circular acc. repeat (Small) Path accuracy on reorientation Cornering deviation (Rectangular) Minimum posing time Drift of pose Exchangability Static compliance Hearing deviations

Measurement

Measure Count Laser Tracker Configuration

Auto

Start Stop Reset Select All Clear All

Load L/T Initialize Home EXIT L/T

Don't click the Buttons While measuring.

61 63a 67 65b 65c

FIG. 11

73

70

| | |
|--|--|
| Robot Coordinate Translation | |
| Pose accuracy and pose repeatability | |
| Multi-directional pose accuracy variation | |
| Distance acc & Repeatability | |
| Position Stabilization Time & overshoot | |
| Drift of pose Characteristics | |
| Exchangeability | |
| Path acc. & repeatability(Line) | |
| Path velocity characteristics | |
| Path acc. & repeatability(BCircle) | |
| Path acc. & repeatability(SCircle) | |
| Path accuracy on reorientation | |
| Correlation Deviations | |
| Minimum posing time | |
| Waving Deviations, | |
| Static Compliance | |
| Measured Data | |
| Extra Controls | |
| Exit | |

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Report

FIG. 12

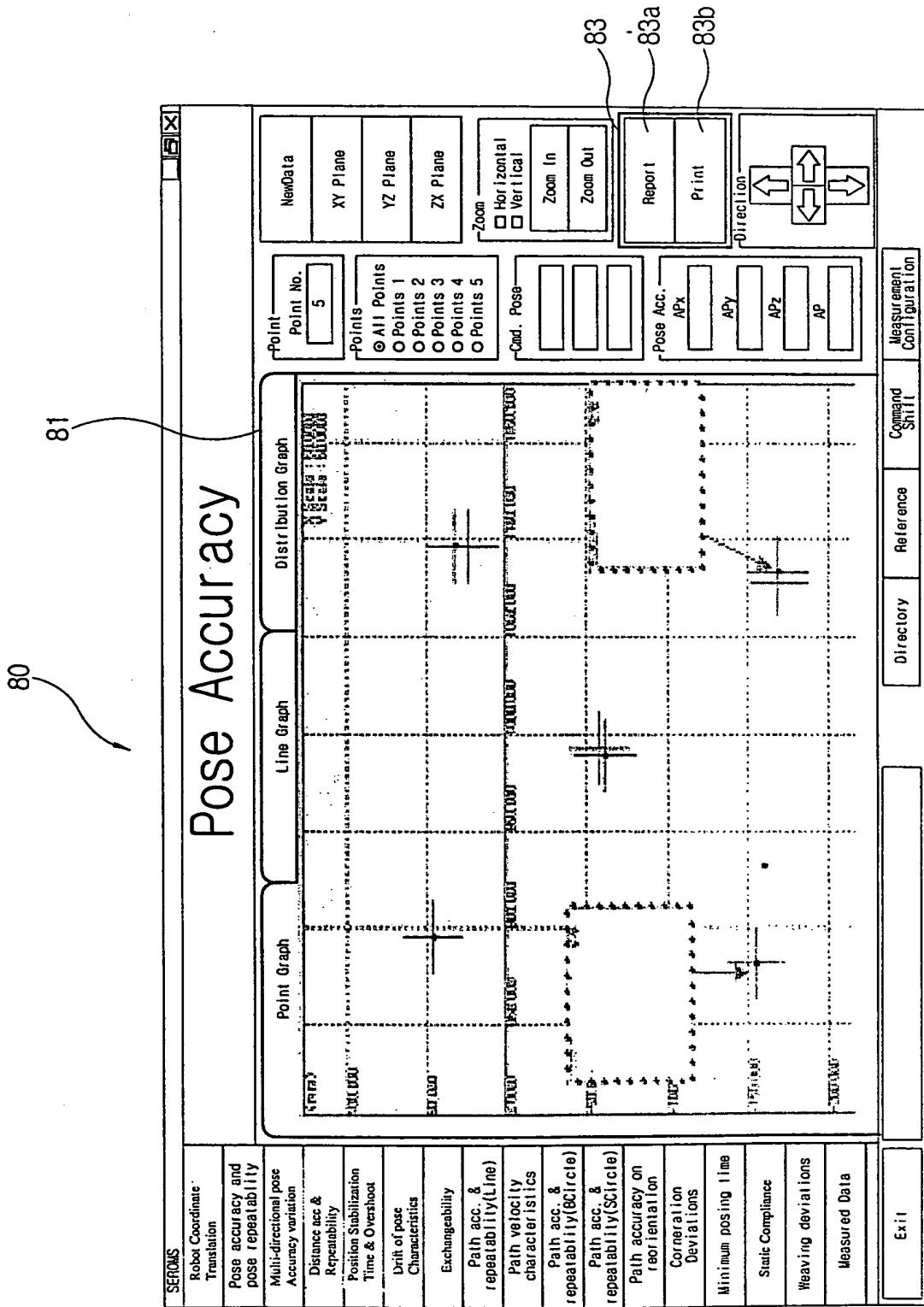


FIG. 13

Robot Performance Measurement [ISO 9283]

[Exchangeability]

Date : 2003-04-07

1. Measurement Information

| | | | |
|--------------------------|---|---------------------|--------|
| a. Type | : | j. σ Quality | 4.0 |
| b. Model | : | k. DPMO | 6209.7 |
| c. Manufacturer | : | l. Result | PASS |
| d. Robot Serial Number | : | | |
| e. Main Software Version | : | | |
| f. BSC Software Version | : | | |
| g. Measurement System | : | | |
| h. Measured Date | : | | |
| i. Operator | : | | |
| | | | |

2. Measurement Result

| P1[E] | R1 | R2 | R3 | R4 | R5 | 비고 |
|-------|----|-------|-------|-------|-------|----|
| R1 | - | 0.016 | 0.013 | 0.004 | 0.008 | |
| R2 | - | - | 0.026 | 0.018 | 0.007 | |
| R3 | - | - | - | 0.010 | 0.020 | |
| R4 | - | - | - | - | 0.011 | |
| R5 | - | - | - | - | - | |

| | | |
|--------------------------|---|---------------------------|
| a. Load | : | 100 % |
| b. Override Speed | : | 100 % |
| c. CP Speed | : | 500 mm/sec |
| d. Specified Limit | : | E Low : -Q11 E High : Q12 |
| e. Number of Poses | : | 5 |
| f. Measurement Cycle | : | 10 |
| g. Measurement Frequency | : | 500 Hz |

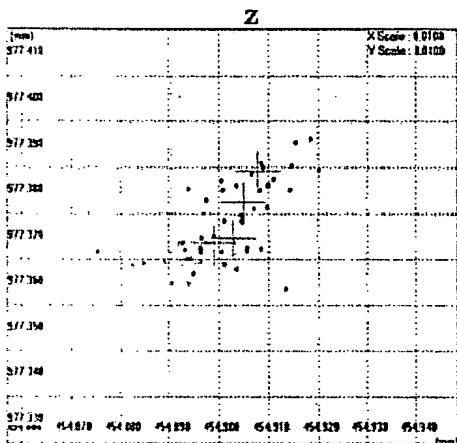
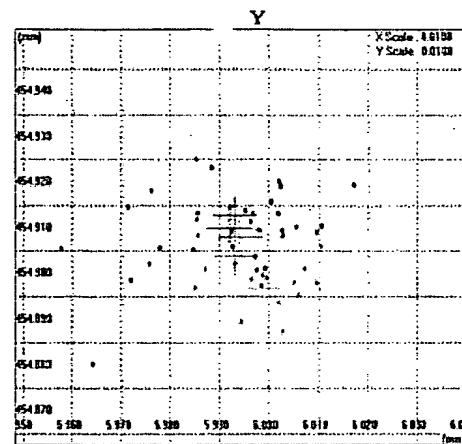
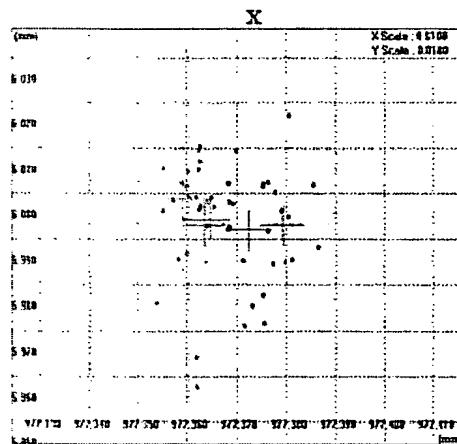
3. Additional Notes

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|--|

FIG. 14

Robot Performance Measurement [ISO 9283]

Exchangeability P1



Additional Notes

FIG. 15

